

Appl. No. 09/322,708  
Amdt. dated September 11, 2003  
Reply to Office Action of June 13, 2003

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1. (Currently amended):

A method for testing a transmission system, the method comprising:

receiving a time division multiplexed (TDM) stream on an input of the transmission system, wherein the TDM stream comprises a plurality of data fields and a plurality of unused fields;

inserting test data in one or more of the plurality unused fields of the TDM stream using a logic circuit;

transferring the TDM stream from the logic circuit, along a plurality of components of the transmission system, and back to the logic circuit; and, including a plurality of time slot interchangers (TSIs);

~~operating the TSIs to switch the fields of the TDM stream as it is transferred along the plurality of components of the transmission system; and~~

comparing the test data against the transferred test data using the logic circuit.

2. (Original):

The method of claim 1, wherein transferring the TDM stream comprises generating a connection path between the plurality of components of the transmission system.

3. (Original):

The method of claim 2, wherein the connection path is configured to transfer the test data between the plurality of components of the transmission system using one or more of the plurality unused fields of the TDM stream.

4. (Original):

The method of claim 3, further comprising storing the transferred test data prior to comparing the test data against the transferred test data.

5. (Original):

The method of claim 3, further comprising generating an error flag if the test data is different from the transferred test data.

6. (Previously presented):

A method for testing a digital signal processor (DSP) of a transmission system, the method comprising:

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receiving a time division multiplexed (TDM) stream on an input of the transmission system, wherein the TDM stream comprises a plurality of data fields and a plurality of unused fields;

generating a test signal, wherein the test signal is generated by the DSP

inserting the test signal in one or more of the plurality unused fields of the TDM stream;

transferring the TDM stream along a plurality of components of the transmission system; and

comparing the test signal against the transferred test signal.

7. (Original):

The method of claim 6, wherein transferring the TDM stream comprises generating a connection path between the plurality of components of the transmission system.

8. (Original):

The method of claim 7, wherein the connection path is configured to transfer the test data between the plurality of components of the transmission system using one or more of the plurality unused fields of the TDM stream.

9. (Original):

The method of claim 7, further comprising generating an error flag if the test signal is different from the transferred test signal.

10. (Currently amended):

A transmission system comprising:

~~a controller, wherein the controller is operable to set up call connections between interfaces of the transmission system;~~

~~a framer block coupled to the controller, wherein the framer block is operable to generate a time division multiplexed (TDM) stream having a plurality of data fields and a plurality of unused fields;~~

~~a logic circuit coupled to the controller and the framer block, wherein the logic circuit is operable to insert test data in one or more of the plurality of unused fields and to compare received data to the test data; and~~

a controller coupled to the framer block, the logic circuit, and a plurality of components of the transmission system, wherein the controller is operable to set up a connection path from the logic circuit, along the plurality of components of the transmission system, and back to the logic circuit.

~~a plurality of time slot interchangers (TSIs) coupled to the controller and a field programmable gate array (FPGA), wherein the TSIs are operable to switch the fields of the TDM stream.~~

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11. (Original):

The transmission system of claim 10, wherein the time slot interchangers are further operable to transfer the test data along components of the transmission system using one or more of the plurality of unused fields.

12. (Original):

The transmission system of claim 11, wherein the logic circuit comprises a receiver, the receiver operable to store the transferred test data.

13. (Original):

The transmission system of claim 12, wherein the logic circuit further comprises a comparator, the comparator configured to compare the inserted test data and the transferred test data.

14. (Original):

The transmission system of claim 13, wherein the logic circuit is further operable to generate an error flag if the inserted test data is different from the transferred test data.

15. (Original):

The transmission system of claim 14, wherein the logic circuit comprises a field programmable gate array.

16. (Currently amended):

A transmission system comprising:

receiver means for receiving a time division multiplexed (TDM) stream on an input of the transmission system, wherein the TDM stream comprises a plurality of data fields and a plurality of unused fields;

logic means coupled to the receiver means, the logic means for inserting test data in one or more of the plurality unused fields of the TDM stream and for comparing received data to the test data;

~~time slot interchanger (TSI) means coupled to the logic means, the TSI means for transferring the TDM stream along a plurality of components of the transmission system;~~

~~controller means coupled to the TSI-receiver means, the logic means, and a plurality of components of the transmission system, the controller means for operating the TSIs to switch the fields of the TDM stream as it is transferred setting up a connection path from the logic means, along the plurality of components of the transmission system, and back to the logic circuit system; and~~

~~comparator means coupled to the receiver means, the comparator means for comparing the test data against the transferred test data.~~

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17. (Previously presented):

The transmission system of claim 16, wherein the TSI means is further for generating a connection path between the plurality of components of the transmission system.

18. (Previously presented):

The transmission system of claim 17, wherein the connection path is configured to transfer the test data between the plurality of components of the transmission system using one or more of the plurality unused fields of the TDM stream.

19. (Previously presented):

The transmission system of claim 18, wherein the receiver means is further for storing the transferred test data prior to comparing the test data against the transferred test data.

20. (Previously presented):

The transmission system of claim 18, further comprising error generator means coupled to the receiver means and the logic means, the error generator means for generating an error flag if the test data is different from the transferred test data.

21. (Previously presented):

A transmission system comprising:

receiver means for receiving a time division multiplexed (TDM) stream on an input of the transmission system, wherein the TDM stream comprises a plurality of data fields and a plurality of unused fields;

digital signal processor (DSP) means for generating a test signal;

logic means coupled to the receiver means and the DSP means, the logic means for inserting the test signal in one or more of the plurality unused fields of the TDM stream;

time slot interchanger (TSI) means coupled to the logic means, the TSI means for transferring the TDM stream along a plurality of components of the transmission system; and

comparator means coupled to the receiver means, the comparator means for comparing the test signal against the transferred test signal.

22. (Previously presented):

The transmission system of claim 21, wherein the TSI means is further for generating a connection path between the plurality of components of the transmission system.

23. (Previously presented):

The transmission system of claim 22, wherein the connection path is configured to transfer the test data between the plurality of components of the transmission system using one or more of the plurality unused fields of the TDM stream.

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24. (Previously presented):

The transmission system of claim 22, further comprising error generator means coupled to the receiver means and the logic means, the error generator means for generating an error flag if the test signal is different from the transferred test signal.

25. (Currently amended):

A program, embodied in data signals on a computer readable medium, for testing a transmission system, said program comprising:

a receiver segment for receiving a time division multiplexed (TDM) stream on an input of the transmission system, wherein the TDM stream comprises a plurality of data fields and a plurality of unused fields;

a logic segment coupled to the receiver segment, the logic segment for inserting test data in one or more of the plurality unused fields of the TDM stream and for comparing received data to the test data;

a controller segment coupled to the receiver segment and the logic segment, time-slot interchanger (TSI) means, the controller segment for transferring operating the TSIs to transfer the TDM stream from the logic segment, along a plurality of components of the transmission system, and back to the logic segment, system and to switch the fields of the TDM stream ~~as it is transferred along the plurality of components of the transmission system;~~ and

a comparator segment coupled to the receiver segment, the comparator segment for comparing the test data against the transferred test data.

26. (Previously presented):

The transmission system of claim 25, wherein the TSI means is further to generate a connection path between the plurality of components of the transmission system.

27. (Previously presented):

The transmission system of claim 26, wherein the connection path is configured to transfer the test data between the plurality of components of the transmission system using one or more of the plurality unused fields of the TDM stream.

28. (Previously presented):

The transmission system of claim 27, wherein the receiver segment is further for storing the transferred test data prior to comparing the test data against the transferred test data.

29. (Previously presented):

The transmission system of claim 27, further comprising an error generator segment coupled to the receiver segment and the logic segment, the error generator segment for generating an error flag if the test data is different from the transferred test data.

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30. (Previously presented):

A program, embodied in data signals on a computer readable medium, for testing a digital signal processor (DSP) of a transmission system, said program comprising:

a receiver segment for receiving a time division multiplexed (TDM) stream on an input of the transmission system, wherein the TDM stream comprises a plurality of data fields and a plurality of unused fields;

digital signal processor (DSP) means for generating a test signal;

a logic segment coupled to the receiver segment and the DSP means, the logic segment for inserting the test signal in one or more of the plurality unused fields of the TDM stream;

a time slot interchanger (TSI) segment coupled to the logic segment, the TSI segment for transferring the TDM stream along a plurality of components of the transmission system; and

a comparator segment coupled to the receiver segment, the comparator segment for comparing the test signal against the transferred test signal.

31. (Previously presented):

The transmission system of claim 30, wherein the TSI segment is further for generating a connection path between the plurality of components of the transmission system.

32. (Previously presented):

The transmission system of claim 31, wherein the connection path is configured to transfer the test data between the plurality of components of the transmission system using one or more of the plurality unused fields of the TDM stream.

33. (Previously presented):

The transmission system of claim 31, further comprising an error generator segment coupled to the receiver segment and the logic segment, the error generator segment for generating an error flag if the test signal is different from the transferred test signal.

34. (Previously presented):

A transmission system comprising:

a receiver, wherein the receiver is operable to receive a time division multiplexed (TDM) stream on an input of the transmission system, wherein the TDM stream comprises a plurality of data fields and a plurality of unused fields;

a digital signal processor (DSP) operable to generate a test signal;

a logic circuit coupled to the receiver and the DSP, wherein the logic circuit is operable to insert the test signal in one or more of the plurality unused fields of the TDM stream;

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a plurality of time slot interchangers (TSIs) coupled to the controller and the logic circuit, wherein the TSIs are operable to transfer the TDM stream along a plurality of components of the transmission system; and

a comparator coupled to the receiver and the logic circuit, the comparator operable to compare the test signal against the transferred test signal.

35. (Previously presented):

The transmission system of claim 34, wherein the TSIs are further operable to transfer the test signal along components of the transmission system using one or more of the plurality of unused fields.

36. (Previously presented):

CI The transmission system of claim 35, wherein the receiver is further operable to store the test signal.

37. (Previously presented):

The transmission system of claim 36, further comprising a comparator coupled to the receiver and the logic circuit, the comparator operable to compare the test signal against the transferred test signal.

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